

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

Claim 1 (currently amended): A human Erythropoietin receptor agonist polypeptide, comprising a modified Erythropoietin amino acid sequence selected from the group consisting of:

- (a) the sequence of SEQ ID No:121;
- (b) a polypeptide sequence comprising residues 7-166 of SEQ ID NO:121;
- (c) a polypeptide sequence comprising residues 1-161 of SEQ ID NO:121;
- (d) a polypeptide sequence comprising residues 7-161 of SEQ ID NO:121;

and wherein said modification comprises the linear rearrangement of the sequences of (a) – (d) wherein the N-terminus is joined to the C-terminus directly or through a linker capable of joining the N-terminus to the C-terminus and new C- and N-termini are created between the amino acid residue pairs of SEQ ID NO:121 selected from the group consisting of:

23-24	48-49	111-112
24-25	50-51	112-113
25-26	51-52	113-114
26-27	52-53	114-115
27-28	53-54	115-116
28-29	54-55	116-117
29-30	55-56	117-118
30-31	56-57	118-119
31-32	57-58	119-120
32-33	77-78	120-121
33-34	78-79	121-122
34-35	79-80	122-123
35-36	80-81	123-124
36-37	81-82	124-125
37-38	82-83	125-126
38-39	84-85	126-127

40-41	85-86	127-128
41-42	86-87	128-129
43-44	87-88	129-130
44-45	88-89	130-131 and
45-46	108-109	131-132;
46-47	109-110	
47-48	110-111	

and wherein said Erythropoietin receptor agonist polypeptide may optionally be immediately preceded by (methionine⁻¹), (alanine⁻¹) or (methionine⁻², alanine⁻¹).

2 (previously amended). The Erythropoietin receptor agonist polypeptide, as recited in claim 1, wherein said linker is selected from the group consisting of;

GlyGlyGlySer SEQ ID NO:123;
GlyGlyGlySerGlyGlyGlySer SEQ ID NO:124;
GlyGlyGlySerGlyGlyGlySerGlyGlyGlySer SEQ ID NO:125;
SerGlyGlySerGlyGlySer SEQ ID NO:126;
GluPheGlyAsnMet SEQ ID NO:127;
GluPheGlyGlyAsnMet SEQ ID NO:128;
GluPheGlyGlyAsnGlyGlyAsnMet SEQ ID NO:129; and
GlyGlySerAspMetAlaGly SEQ ID NO:130.

3 (currently amended). The Erythropoietin receptor agonist polypeptide of claim 1 selected from the group consisting of;

SEQ ID NO:1; SEQ ID NO:6; SEQ ID NO:11; SEQ ID NO:12; SEQ ID NO:13; SEQ ID NO:14; SEQ ID NO:15; SEQ ID NO:16; SEQ ID NO:17; SEQ ID NO:18; SEQ ID NO:19; SEQ ID NO:20; SEQ ID NO:21; SEQ ID NO:22; SEQ ID NO:23; SEQ ID NO:24; SEQ ID NO:25; SEQ ID NO:31; SEQ ID NO:32; SEQ ID NO:33; SEQ ID NO:36; SEQ ID NO:37; SEQ ID NO:38; SEQ ID NO:39; SEQ ID NO:40; SEQ ID NO:41; SEQ ID NO:42; SEQ ID NO:45; SEQ ID NO:46; SEQ ID NO:47; SEQ ID NO:50; SEQ ID NO:51; SEQ ID NO:52; SEQ ID NO:53; SEQ ID NO:54; SEQ ID NO:55; SEQ ID NO:56; SEQ ID NO:57; SEQ ID NO:58; SEQ ID NO:59 and SEQ ID NO:122.

4 (previously amended). The Erythropoietin receptor agonist polypeptide of claim 3 wherein the linker sequence is selected from the group consisting of;

GlyGlyGlySerGlyGlyGlySer SEQ ID NO:124;
GlyGlyGlySerGlyGlyGlySerGlyGlyGlySer SEQ ID NO:125;
SerGlyGlySerGlyGlySer SEQ ID NO:126;
GluPheGlyAsnMet SEQ ID NO:127;
GluPheGlyGlyAsnMet SEQ ID NO:128;
GluPheGlyGlyAsnGlyGlyAsnMet SEQ ID NO:129; and
GlyGlySerAspMetAlaGly SEQ ID NO:130.

5 (previously amended). A nucleic acid molecule comprising a DNA sequence encoding the Erythropoietin receptor agonist polypeptide of claim 1.

6 (previously amended). A nucleic acid molecule comprising a DNA sequence encoding the Erythropoietin receptor agonist polypeptide of claim 2.

7 (previously amended). A nucleic acid molecule comprising a DNA sequence encoding the Erythropoietin receptor agonist polypeptide of claim 3.

8 (currently amended). A nucleic acid molecule comprising a DNA sequence encoding the Erythropoietin receptor agonist polypeptide of claim 3 selected from the group consisting of;

SEQ ID NO:60; SEQ ID NO:65; SEQ ID NO:70; SEQ ID NO:71; SEQ ID NO:72;
SEQ ID NO:73; SEQ ID NO:74; SEQ ID NO:75; SEQ ID NO:76; SEQ ID NO:77;
SEQ ID NO:78; SEQ ID NO:79; SEQ ID NO:80; SEQ ID NO:81; SEQ ID NO:82;
SEQ ID NO:83; SEQ ID NO:84; SEQ ID NO:90; SEQ ID NO:91; SEQ ID NO:92;
SEQ ID NO:95; SEQ ID NO:96; SEQ ID NO:97; SEQ ID NO:98; SEQ ID NO:99;
SEQ ID NO:100; SEQ ID NO:101; SEQ ID NO:104; SEQ ID NO:105; SEQ ID
NO:106; SEQ ID NO:109; SEQ ID NO:110; SEQ ID NO:111; SEQ ID NO:112; SEQ
ID NO:113; SEQ ID NO:114; SEQ ID NO:115; SEQ ID NO:116; SEQ ID NO:117;
SEQ ID NO:118 and SEQ ID NO:119.

9 (previously amended). A nucleic acid molecule comprising a DNA sequence encoding the Erythropoietin receptor agonist polypeptide of claim 4.

10 (previously amended). A method of producing a Erythropoietin receptor agonist polypeptide comprising: growing under suitable nutrient conditions, a host cell transformed or transfected with a replicable vector comprising said nucleic acid molecule of claim 5, 6, 7, 8 or 9 in a manner allowing expression of said Erythropoietin receptor agonist polypeptide and recovering said Erythropoietin receptor agonist polypeptide.

11 (previously amended). A composition comprising; a Erythropoietin receptor agonist polypeptide according to claim 1, 2, 3 or 4; and a pharmaceutically acceptable carrier.

12 (previously amended). A composition comprising; a Erythropoietin receptor agonist polypeptide according to claim 1, 2, 3 or 4; a second protein; and a pharmaceutically acceptable carrier.

13 (previously amended). The composition of claim 12 wherein said second protein is selected from the group consisting of: GM-CSF, G-CSF, c-mpl ligand, M-CSF, IL-1, IL-4, IL-2, IL-3, IL-5, IL-6, IL-7, IL-8, IL-9, IL-10, IL-11, IL-12, IL-13, IL-15, LIF, flt3/flk2 ligand, human growth hormone, B-cell growth factor, B-cell differentiation factor, eosinophil differentiation factor, stem cell factor, IL-3 variant, fusion protein, G-CSF receptor agonist, c-mpl receptor agonist, IL-3 receptor agonist, and multi-functional receptor agonist.

14 (previously amended). A method of stimulating the production of hematopoietic cells in a patient comprising the step of; administering a Erythropoietin receptor agonist polypeptide of claim 1, 2, 3 or 4, to said patient.